Habitats Discussion Session
October 6th, 2004
State of the Lake Ecosystem Conference

Question 1:

What are these indicators telling us?

Question 2:

What refinements, simplifications, or enhancements would you propose?

(Questions 1& 2 were grouped together in the discussion)

- Useless indicators for assessing aquatic habitat. Need to start over the bundling process.
- First three are useful.
- Groundwater is important but not relevant to aquatic habitat.
- Regional reporting to public, need to get involved at the grassroots level.
- Propose chemical, physical, biotic bundles. Need more physical indicators, need more function and process focus. Examples: Temperature, pH, DO, contamination, thermal changes, heavy-metal deposition, substrate, water quantity, flow variation, sedimentation rates, climate information, energy processes. Measure of energy input into system, storm effects, ice effects- energy level would distil energy impact.
- Also should consider: How are invasive species affecting human use. (i.e. How biological community is affecting physical condition.) How do Zebra mussels affect the substrate? Algal blooms also potentially affect substrate.
- What about Hypoxia?
- Degree of fragmentation should be measured.
- Open water habitat is irrelevant. Coastal, wetland, tributaries, estuaries, near-shore, and connecting waters are more important for assessment and restoration. These areas are more productive, have unique biodiversity and therefore are more indicative of the degradation of the physical condition.
- Primary productivity needs to be measured again!!
- Suggest using satellite images of suspended solids on lake surface to track history of change in water quality and use historic condition as a baseline. Need baseline for modelling trajectories and pathways. Indicative of what is the more natural state. Important for restoration work.
- Possible data sources: Conservation authorities have flow data dating back to 1950's; EC have data that maybe more systematic; Ocean observing systems hydrological and meteorological parameters. Can build on the network and put into Great Lakes GLEOS, GOOS. Need metric readings.

- Connection between biotic IBI function and physical habitat:
    - Need sensitivity analysis of IBI for each lake rather than averaging for all lakes, making it more relevant.
    - Different habitats need different IBI – tying physical condition back to the biology is important.
    - IBI or native vs. invasive indicators.
    - IBI may not be useful but shows linkage between certain patterns between disturbance and species presence/success. Potential habitat vs. suitable habitat - is the IBI really telling us how the species are doing because of human disturbance or is there variability in natural habitat patterns. Maybe better approach would be: Habitat utilization for fish and separate for invertebrate communities. Link to stress not habitat - Disturbance/Pressure.

- Need to bring it back to local-for each community. Scaleable hierarchy for each indicator, to bring it back to local. Needs of hierarchical system to be effective monitoring.
- Environmental signals – disaggregating information is important. Change approach from political boundaries to ecological boundaries.
- Flow regimes example- if you take approach you can improve other factors, groundwater system, storm-water plan, aquatic habitat, etc.. Applicable for range of communities, stitch projects together. Ecosystem health and community health are interactive.
- Water mass characteristics, thermal alterations/changes, and seasonal changes need to be considered.
- Adjacent land use and its impacts, buffer zone – affects thermal state of the water. Degree of vegetative cover indicator of degree of alteration- riparian alteration.
- Nutrient management issues.
- Physical destruction and flow rate need to be considered.
- Nursery habitat for fish important indicator of general health.
- Tributaries, wetlands and lakes need separate assessment.
- Chemical aspect -water quality improving.
- Separation of physical, biotic and chemical or aquatic and terrestrial.
- Hard to pinpoint where alteration is coming form- what is causing and which part of watershed. Geographical scale and temporal scale important.

Question3:

What are the key management implications that emerge?

- Intergovernmental cooperation is very important.
    - Water legislation is mostly at Municipal level-need to be coordinate with provincial and federal government.
    - SOLEC at federal and provincial level: how do you take it to the municipal and NGO level?
    - Institutional gaps exist. Policy framework needs to allow integration between three levels of government. Policy framework, everybody knows their role and overall vision.
    - Need dialogue between three levels of governments. Need overall guidance and vision. Need mandate for municipalities so their actions are well guided. Local communities are restoring local habitat but lack greater vision. NGOs have taken over government's responsibility for greater vision. At the municipal level people make changes, environment not core services, no force, no provision of resources, community up rather than from up provincial and federal governments.
    - Inter-municipal coordination needed.
    - Need to coordinate communities and have them on the same system, onboard to same ecosystem approach.

- Scale issues; need systems approach, hierarchy of indicators. Scale- ecological and political. Indicators need to be scaleable to municipality; natural heritage strategy needs to be taken into account.
- Tie indicators to levels of government and actions.
- Ecological footprint needs to be considered.
- Regulatory side is strong. What about improvement side, what agencies are working on improvement. Difference between restoration and preventative action. Need change in approach.
- Need indicators of stewardship.
- Lots of overlap, should work together instead and have one system, one approach.

Question 4:

Habitat degradation: How can essential habitats be protected and restored to preserve the species and unique and globally significant character of the Great Lakes ecosystem?

- Local standpoint- educating public. Top down approach nerves people and they don't like it. US problem that nobody wants to be regulated want to do what they want. Environmental curriculum is needed in schools. Indoor air quality education hasn't worked. Environmental options cost more money so people don't respond.
- Need local policy to prevent non-native species from coming in. Home depot, garden stores, landscaping bring in invasive species. The public should not have the option to buy these non-native species.
- Need consistent legislation and consistent enforcement. No loopholes for developers.
- Economic perspective is taking over. Need to consider eco-footprint and fundamental change. Wellness rating needs to be added to real estate values and overall cost benefit analyses. Indicators of happiness and well-being not GDP need to be considered. Disconnect from economic values.
- What we're doing is not working we are losing environmental battle as a society we don't realize the gravity of the problem. Best management practices are not making a difference.
- Need to award environmental champions.
- Funding problems- general lack of funding.
- Need to look at the bigger environmental issues and make environmentally correct options more available to the general public.
- Protect habitat through land acquisition. Mainly NGOs do it but it is expensive. Need to recognise property potential for restoration and enhance ecosystem value. Manage lands to maximize ecological potential. Surrounding land use and buffers are also important. Future development and design planning are needed.
- A "department of habitat" is needed.
- Linkages between agencies and planning departments. Need linkage between regulators and land acquisition to further environmental objectives. Need communication between small community groups and government and regulatory agencies.
- Identify overall strategy.
- Limited resources available, need synergy for funding. Connection with money not individual grant but more creative funding options.
- Data-sharing needed between agencies: research organizations and policy makers.